

NON-PUBLIC?: N
ACCESSION #: 8812270226
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Calvert Cliffs, Unit 1 PAGE: 1 OF 4

DOCKET NUMBER: 05000317

TITLE: Turbine Runback Due to Low Stator Cooling Water Pressure Alarm Caused by
Incorrectly Calibrated Alarm Switch
EVENT DATE: 11/14/88 LER #: 88-012-01 REPORT DATE: 12/22/88

OPERATING MODE: 1 POWER LEVEL: 070

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Pat Furio, Licensing Engineer TELEPHONE: (301) 260-4374

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE TO NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 0327 on November 14, 1988, while operating at 70% power, a turbine runback was actuated by low stator coolant pressure. At 0329, the Shift Supervisor ordered the reactor tripped because of increasing pressurizer pressure. The low stator coolant pressure that caused the runback resulted from a reduction in the generator hydrogen pressure during a hydrogen feed and bleed procedure. During the previous maintenance cycle (June 1988), the low stator coolant pressure alarm had been set at 56 PSIG, 12 PSIG above the correct setpoint.

CORRECTIVE ACTIONS

1. The setpoint file has been revised to correct the design setpoint for the low stator cooling pressure.
2. Other safety related and turbine trip setpoints have been reviewed to determine whether offsets have been correctly applied.

3. The format of the setpoint file will be modified to provide clear, consistent information.

4. The Setpoint Control Procedure will be amended to incorporate the lessons learned from this event.

No Technical Specification limits were exceeded and there is minimal safety significance associated with this event.

END OF ABSTRACT

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DESCRIPTION

At 0327 on November 14, 1988, while operating at 70% power, a turbine runback occurred when the low stator coolant pressure switch (EIIS TJ-PS) actuated. At 0329, the Shift Supervisor ordered the reactor (EIIS AB) tripped because of increasing pressurizer pressure. The operators carried out the Post Trip Immediate Actions Procedure (EOP-0) and the Reactor Trip Procedure (EOP-1). The reactor protective system was manually actuated during this event (reactor trip). ESFAS did not actuate with the exception of the Auxiliary Feedwater Actuation System.

The stator coolant system provides cooling to the main generator stator (EIIS TJ). The coolant system pressure is automatically maintained approximately 3 PSI below the generator hydrogen pressure to prevent coolant from leaking into the main generator (EIIS TB). If a low pressure, low flow or high temperature condition exists in the stator coolant system, a turbine runback is initiated to protect the generator components. The runback causes the turbine control valves (EIIS TA-FCV) to ramp closed until either the initiating condition clears or the generator output is below the no coolant limit (approximately 25% load).

Several components did not perform as expected during the transient.

No. 11 steam generator feedwater pump (EIIS SJ-P) tripped due to high discharge pressure.

Letdown flow was lost for several minutes when the letdown control valve (EIIS CB-FCV) went shut.

The steam generator blowdown radiation monitor (EIIS SB-MON) alarmed during the transient.

ANALYSIS

Actuation of the low stator coolant pressure switch that caused the runback resulted from a reduction in the generator hydrogen pressure during a hydrogen feed and bleed procedure. This method is used to increase hydrogen purity in the generator. A caution statement in the generator feed and bleed procedure (OI-10B) reminds the operators that a minimum hydrogen pressure of 50 PSIG should be maintained to prevent turbine runback. However, during the previous maintenance cycle (June 1988), the low stator coolant pressure alarm switch had been set at 56 PSIG. This caused a turbine runback signal at a hydrogen pressure of 59 PSIG, 9 PSI above the minimum hydrogen pressure stated in OI-10B.

The functional test procedure (FTI -101) which describes how to set alarm setpoints is used to set the low stator coolant alarm switch. The technicians who set the setpoint correctly followed the procedure which requires them to get the design setpoint from the setpoint file and add or subtract the offset as shown on the latest completed FTI-101.

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For this pressure switch, the correct design setpoint is 32 PSIG and the offset is 12 PSIG resulting in an applied setpoint of 44 PSIG. This is the pressure that the pressure switch should have been set at. However, the setpoint file stated that the design setpoint was 44 PSIG. There was a note in the setpoint file that was supposed to indicate that the offset is included in the design setpoint but the note was confusing. Therefore, the technicians took what they thought was the design setpoint, 44 PSIG, and added the offset, 12 PSIG, resulting in an applied setpoint of 56 PSIG. This condition existed since 1986. In fact, there has been a previous similar event which was reported in LER 87-04.

Several components did not perform as expected during the transient.

No. 11 steam generator feedwater pump (SGFP) tripped due to high discharge pressure. Prior to the transient, only one SGFP was operating, No. 12 SGFP was out of service for maintenance. When the reactor trip occurred, the SGFP regulating valve closed to 5% flow, as designed. The mini flow valve did not open fast enough to prevent a high discharge pressure condition on the SGFP. After the main feedwater tripped off, the motor driven auxiliary feedwater pump started and supplied auxiliary feedwater.

Letdown flow was lost for several minutes after the reactor trip. The letdown flow control valve closed to its minimum flow value, as designed, after the reactor trip. However, the flow limiter, which limits the valve's full open and full closed position, was found to be

incorrectly sit at zero flow. This caused the valve to close completely after the reactor trip. Letdown flow was reestablished by the Control Room operators. The limiter was incorrectly set because there was no permanent indication for the high and low flow limits. Pencil marks had been made to indicate high and low flow values. Permanent indication is now provided.

The steam generator blowdown radiation monitor alarmed during the event. Chemistry personnel sampled the blowdown once a shift for several days after the event. The blowdown radiation level was initially at the alarm point but quickly returned to normal.

This event occurred at 70% power. If the event had occurred at 100% power, the trip condition would have been reached faster but the consequences would have been no more severe. If the event had occurred at 0% power, the trip condition would not have existed. No Technical Specification limits were exceeded and there is minimal safety significance associated with this event.

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CORRECTIVE ACTIONS

1. The setpoint file has been revised to correct the design setpoint for the low stator cooling pressure alarm switch.
2. Other safety related and turbine trip setpoints have been reviewed to ensure they are not confusing and the offsets are correctly applied. Unit 2 setpoints have also been reviewed to determine their acceptability.
3. The format of the setpoint file will be modified to provide clear, consistent information.
4. The Setpoint Control Procedure will be amended to incorporate the lessons learned from this event.

ATTACHMENT 1 TO 8812270226 PAGE 1 OF 1

BALTIMORE
GAS AND
ELECTRIC

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CALVERT CLIFFS NUCLEAR POWER PLANT DEPARTMENT
CALVERT CLIFFS NUCLEAR POWER PLANT

LUSBY, MARYLAND 20657

December 22, 1988

U.S. Nuclear Regulatory Commission Docket No. 50-317
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Washington, DC 20555

Dear Sirs:

Revision 1 of LER 88-012 is attached. This revision changes the report date on page 1. The correct report date for Revision 0 was 12-13-88. We regret any inconvenience this may have caused.

Should you have any questions regarding this report, we would be pleased to discuss them with you.

Very truly yours,

L. B. Russell
Manager-Calvert Cliffs Nuclear Power Plant Department

LBR:PSF:tlv

cc: William T. Russell
Director, Office of Management Information
and Program Control
Messrs: J. A. Tiernan
L. B. Russell
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